

REMARKS

Reexamination and reconsideration of the rejections are hereby requested.

First of all, applicant affirms the election of group 1, Claims 1-27, for prosecution on the merits. This election is made without traverse.

Claims 6 and 8 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite. With respect to claim 6 the examiner indicates that the recitations "plasma air" and "at least one nozzle" are either confusing as to their relation to the system or lacking antecedent basis. It is submitted that the term plasma air is sufficiently defined in the specification. This term is used to distinguish it from atomization air and wall protection air as set forth on page two of the specification at line 12. The examiner's attention is also directed to the specification at page 7 beginning at line 20 that discusses the flow rate of the plasma air. As to the language "at least one nozzle," it is submitted that it clearly refers to a nozzle that introduces air in the specified velocity range. With respect to claim 8, this claim has been amended to recite "the fuel nozzle" and the word "the" has been deleted before the word "electrodes" in claim 8. It is submitted that these changes eliminate the 35 U.S.C. § 112, second paragraph, rejections. Reconsideration is requested.

Claims 1-9, 13-25 and 27 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) is obvious over Cohn et al., U.S. Patent No. 6,322,757. Reconsideration is requested.

Independent claim 1 has been amended to recite that the supplemental nozzle section includes a fuel nozzle and an air nozzle. According to the invention, the plasmatron includes both a first reaction extension region connected downstream from the plasmatron fuel reformer and a second reaction extension region connected downstream from the supplemental nozzle section. As discussed in the specification, by adding the reaction extension regions, the plasmatron reformer system of the invention is capable of wide dynamic range operation which is of particular importance for use with vehicular gasoline engines which operate over a wide fuel flow range. According to one embodiment of the invention, wide dynamic range is attained by using a multi-stage system wherein the first stage is a plasmatron configured for low flow operation. When

higher levels of hydrogen-rich gas are needed, the hot product gas from the first stage plasmatron can be used to initiate reforming in a second stage reforming section (or reaction extension section). A second stage does not itself include a plasmatron. Independent claim 1 has been amended to recite that the supplemental nozzle section includes a fuel nozzle and an air nozzle. No new matter is introduced by this amendment. Support may be found throughout the specification and figures and in particular at page 7 beginning at line 7.

Independent claim 1 stands rejected either as anticipated by or as obvious over the Cohn, et al., reference. The Cohn et al., patent is directed to a low power compact plasma fuel converter. The examiner refers to figure 14 of Cohn and also points to Cohn at column 3 line 42-45. Fig. 14 of Cohn relates to an embodiment of that invention employing a heat exchanger and a water-shift reactor. The embodiment in fig. 14 includes reaction extensions cylinders 26 but do not show separate nozzles for air and fuel introduction as now claimed. Therefore, it is submitted that Cohn does not anticipate nor render obvious clam 1 as amended herein.

Claims 10-12 and 26 are rejected as being unpatentable over Cohn in view of Cohn et al., U.S. Patent No. 5,852,927. It is noted that these claims all ultimately depend from claim 1 and are therefore allowable for the reasons set forth above with respect to claim 1.

In view of the foregoing amendments, it is submitted that the claims are in conditioned for allowance and early favorable action is requested.

Respectfully submitted,

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